MULTIMEDIA UNIVERSITY

STUDENT ID NO

# MULTIMEDIA UNIVERSITY

# FINAL EXAMINATION

**TRIMESTER 2, 2015/2016 SESSION**

## TSV3561/TSE3251 – SOFTWARE VERIFICATION & VALIDATION

(All sections / Groups)

12th March, 2016
2:30 p.m. – 4:30 p.m.
(2 Hours)

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**INSTRUCTIONS TO STUDENTS**

1. This Question paper consists of 4 pages with 5 Questions only.
2. Attempt all **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

## Question 1

a. State any TWO rules or conditions which are true when a software bug occurs.

[2 Marks]

b. The waterfall model is usually the first one taught in programming classes. What are the THREE most important characteristics you would observe about the waterfall model?

[3 Marks]

c. The statement given below reflects as an unverifiable specification. How would you modify the statement to make it a verifiable specification?

"if a user presses a request button at the 10th floor, an available elevator must arrive at the 10th floor soon"

[2 Marks]

d. If you are a tester, which development life cycle model would you like? State any THREE specific and important reasons for your choice.

[3 Marks]

## Question 2

a. Given that it is impossible to test a program completely, what information do you think should be considered when deciding whether it is time to stop testing? State any THREE relevant questions you would ask at this juncture.

[3 Marks]

b. It is important for a tester to know the difference between 'precision' and 'accuracy'. Using the example of a Windows Software calculator, explain which one is more important and how it can be achieved.

[2 Marks]

c. Robert, a software tester is asked to review a project which has no specification.

i. What type of development model do you think is the team using?

[1 Mark]

ii. How will Robert gather information in order to do a review?

[2 Marks]

..... *Continued*

c. The job of a tester is to inspect and critique his peer's work, find problems with it and publicize what he has found. This creates a negative relationship with the team. Suggest TWO ways a tester can build a better relationship with his team mates.

[2 Marks]

**Question 3**

a. Differentiate between 'Standards' and 'Guidelines'. Give an example for each.

[4 Marks]

b. For the statements given below, identify the type of error category you would classify them. (data reference, data declaration, computation, comparison, control flow, subroutine parameter and input/output errors)

(i) Buffer overruns
(ii) A variable is initialized at the same time as it is declared
(iii) Addition of two variables having same data type but different lengths- adding a byte to a word.
(iv) Premature loop exit

[4 Marks]

c. Explain the terms 'Program Statement' and 'Line Coverage'? Based on the code fragment given below, how can we achieve Full Statement Coverage?

```
1. If CONDITION then
2.  DO _SOMETHING;
3. End if
4. ANOTHER STATEMENT;
```

[2 Marks]

**Question 4**

a. Assume that you are a tester performing testing on a website. The website contains text fields for user to enter data and dynamic contents with graphics that changes based on the user's preferences. In addition, it is a popular website receiving thousands of individual hits a day in which each hit might perform download of data from the website's server to the browser's computer.

Explain how you would test the website using

i) black-box testing approach [2 Marks]
ii) white-box testing approach [2 Marks]
iii) grey-box testing approach [2 Marks]

..... *Continued*

b. In achieving compatibility testing, you must know some of the basic standards and guidelines. There are high-level and low-level standards of compatibility testing. Give two examples of each level.

[2 Marks]

c. As a software tester, you need to know and understand the hacker's intention to break the system. Discuss two motives why a hacker intends to break the system.

[2 Marks]

**Question 5**

a. IEEE standard 829 for Software Test Documentation states that the purpose of a software test plan is to prescribe the scope, approach, resources, and schedule of the testing activities. What should be defined in the test plan in terms of :

i.) People [1.5 Marks]
ii.) Places [1.5 Marks]
iii.) Things [1.5 Marks]

b. To effectively describe a bug, a bug report must show that the bug is reproducible. Explain the meaning of "reproducible" in the context of bug reporting.

[1.5 Marks]

c. Provide a quantitative measure for a:

i.) pass criterion [1.5 Marks]
ii.) fail criterion [1.5 Marks]

d. What is a test case? [1 Mark]

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